

CLAIMS

We claim:

1. A hybrid polypeptide comprising:
a target polypeptide,
an identification peptide comprising the amino-terminal extracellular domain of rhodopsin, where said identification peptide is linked to the amino-terminus of said target polypeptide.
2. The hybrid polypeptide of claim 1 where said identification peptide comprises an amino terminal extracellular domain of bovine rhodopsin.
3. The hybrid polypeptide of claim 2 where said identification peptide comprises amino-terminal amino acids of bovine rhodopsin selected from the group consisting of: a first 20, a first 25, a first 30, and a first 35 amino acids.
4. The hybrid polypeptide of claim 1 where said target polypeptide comprises a membrane protein.
5. The hybrid polypeptide of claim 4 where said target polypeptide comprises a G-protein coupled receptor protein.
6. A method of purifying a target polypeptide comprising:
expressing a hybrid polypeptide comprising an identification peptide of the amino terminal extracellular domain of rhodopsin fused to the amino terminal region of a target polypeptide,
forming a complex of said hybrid polypeptide with an antibody against said amino terminal domain of rhodopsin,
isolating said complex, and
dissociating said hybrid polypeptide from said antibody.

7. The method of claim 6 where said target polypeptide comprises a G-protein coupled receptor.
8. The method of claim 6 where said identification peptide comprises amino-terminal amino acids of bovine rhodopsin selected from the group consisting of: a first 20, a first 25, a first 30, and a first 35 amino acids..
9. The method of claim 8 where said antibody is directed against a first 15 amino acids of bovine rhodopsin.
10. The method of claim 6 where said antibody is held by a resin.
11. The method of claim 6 where said hybrid polypeptide is dissociated from said antibody by a pH gradient
12. The method of claim 6 where said hybrid polypeptide is dissociated from said antibody by a salt gradient.
13. The method of claim 6 where said hybrid polypeptide is dissociated from said antibody by competing with a peptide comprising of all or a portion of the amino terminal domain of rhodopsin.
14. A method of labeling a target polypeptide comprising:
expressing a hybrid polypeptide comprising: an amino terminal extracellular domain of rhodopsin fused to an amino terminal region of a target polypeptide;
forming a complex of said hybrid polypeptide and an antibody against said amino terminal extracellular domain of rhodopsin; and
detecting said complex by means of a reporting agent.

15. The method of claim 14 where said amino terminal domain of rhodopsin comprises amino-terminal amino acids of bovine rhodopsin selected from the group consisting of: a first 20, a first 25, a first 30, and a first 35 amino acids.
16. The method of claim 15 where said antibody is directed against a first 15 amino acids of bovine rhodopsin.
17. The method of claim 14 where said target polypeptide is a G-protein coupled receptor.
18. The method of claim 14 where said reporting agent is conjugated to said antibody.
19. The method of claim 14 where said reporting agent is a fluorescent marker.
20. The method of claim 14 where said reporting agent is an enzymatic marker.
21. The method of claim 14 where said reporting agent is a radioactive marker.
22. The method of claim 14 where said complex is detected by biding said complex to a secondary antibody against said antibody to the amino terminal extracellular domain of rhodopsin, and said secondary antibody is linked to a reporting agent.